WHAT IS CLAIMED IS:

1. A flat panel X-ray detector which comprises:

an X-ray-charge conversion film converting incident X-rays into electric charges; and

a pair of electrodes disposed in contact with both surfaces of said X-ray-charge conversion film;

wherein said X-ray-charge conversion film has a laminate structure including a plurality of metal halide films laminated along direction of c-axis of hexagonal crystal structure and differing in band gap from one another, and halogen atoms contained in said plurality of metal halide films are of the same kind among them.

2. The flat panel X-ray detector according to claim 1, wherein at least one of said pair of electrodes is a conductive film which is lattice-matched with said metal halide film disposed neighboring thereon.

3. The flat panel X-ray detector according to claim 1, wherein said metal halide film comprises at least one metal halide selected from the group consisting of metal iodide, metal bromide and metal chloride, said metal being selected from the group consisting of Pb, Hg, Sn, Bi, In, Tl, and Cd.

4. The flat panel X-ray detector according to claim 1, wherein said metal halide film comprises at least one metal halide selected from the group

consisting of PbI_2, HgI_2, SnI_2, BiI_3, InI, InI_3, CdT_2, and TlI.

5. The flat panel X-ray detector according to claim 1, wherein said metal halide film comprises at least one metal halide selected from the group consisting of PbI_2, HgI_2, SnI_2, BiI_3, InI and InI_3; said electrodes comprises a hexagonal crystal structure having a-axis lattice constant of 4.5 angstroms, a face-centered cubic structure having a-axis lattice constant of 6.45 angstroms or a body-centered cubic structure having a-axis lattice constant of 4.27 angstroms; and lattice mismatching between at least one of said electrodes and said metal halide film disposed neighboring thereon is 20% or less.

6. The flat panel X-ray detector according to claim 1, wherein said plurality of metal halide films comprise metal halides which are the same in kind with one another but differ in conductivity type from one another.

7. The flat panel X-ray detector according to claim 6, wherein said plurality of metal halide films comprise an n-type metal halide film and a p-type metal halide film.

8. The flat panel X-ray detector according to claim 7, wherein said plurality of metal halide films comprise a Bi-doped n-type PbI_2 film and an In-doped p-type PbI_2 film.

9. The flat panel X-ray detector according to claim 6, wherein said plurality of metal halide films comprise an n-type metal halide film, an i-type metal halide film and a p-type metal halide film.

10. The flat panel X-ray detector according to claim 9, wherein said plurality of metal halide films comprise a Bi-doped n-type PbI_2 film, an undoped PbI_2 film and an In-doped p-type PbI_2 film.

11. The flat panel X-ray detector according to claim 1, wherein said plurality of metal halide films comprise mixed crystalline metal halides which are the same in kind with one another but additionally contain different kinds of metal elements therein.

12. The flat panel X-ray detector according to claim 11, wherein said plurality of metal halide films comprise a Pb_xB_yI film, a PbI_2 film and a Pb_xIn_yI film.

13. The flat panel X-ray detector according to claim 1, wherein said plurality of metal halide films comprise various kinds of metal halides.

14. The flat panel X-ray detector according to claim 13, wherein said plurality of metal halide films comprise a BiI_3 film, a PbI_2 film and an InI_3 film.

15. The flat panel X-ray detector according to claim 1, wherein at least one of said electrodes comprise a hexagonal crystal structure having a-axis which is approximately equivalent to (0001), a face-centered cubic structure having a-axis which is

approximately equivalent to (111) or a body-centered cubic structure having a-axis which is approximately equivalent to (110).

16. A flat panel X-ray detector which comprises:

an X-ray-charge conversion film converting incident X-rays into electric charge;

pixel electrodes formed on said X-ray-charge conversion film to correspond with each of pixels which are arranged in a form of array;

switching elements each electrically connected with each of said pixel electrodes;

signal lines each electrically connected with said switching element of each row;

scanning lines each electrically connected with said switching element of each column; and

a common electrode which is disposed on one of the surfaces of said X-ray-charge conversion film, which is opposite to the surface where said pixel electrodes of said X-ray-charge conversion film are disposed;

wherein said X-ray-charge conversion film has a laminate structure comprising a plurality of metal halide films laminated along a direction of c-axis of hexagonal crystal structure and differing in band gap from one another, the halogen atoms of the metal halide films are of the same kind with one another.

17. The flat panel X-ray detector according to claim 16, wherein said plurality of metal halide films

comprise a Bi-doped n-type PbI_2 film, an undoped PbI_2 film and an In-doped p-type PbI_2 film.

18. The flat panel X-ray detector according to claim 16, wherein said plurality of metal halide films comprise a Pb_xB_yI film, a PbI_2 film and a Pb_xIn_yI film.

19. The flat panel X-ray detector according to claim 16, wherein said plurality of metal halide films comprise a BiI_3 film, a PbI_2 film and an InI_3 film.

20. The flat panel X-ray detector according to claim 16, wherein at least one of said pair of electrodes is a conductive film which is lattice-matched with said metal halide film disposed neighboring thereon.